

IMAGING SENSOR SYSTEM WITH STAGGERED  
ARRANGEMENT OF IMAGING DETECTOR SUBELEMENTS, AND  
METHOD FOR LOCATING A POSITION OF A FEATURE IN A SCENE

ABSTRACT OF THE DISCLOSURE

5           An imaging sensor system includes an optics system that images a point  
feature of a scene at an image plane with a blur-circle image having a blur  
diameter, and a detector array at the image plane. Special array patterns and  
signal detector logic are used to improve the accuracy of the determination of the  
object location. In one form, the detector array is a one-dimensional detector  
10       array comprising a plurality of detector subelements each having a width of from  
about 1/2 to about 5 blur diameters, and a length of  $n$  blur diameters. Each  
detector subelement overlaps each of two adjacent detector subelements along  
their lengths. An overlap of each of the two adjacent detector subelements is  $m$   
blur diameters, and a center-to-center spacing of each of the two adjacent detector  
15       subelements is  $n_0$  blur diameters. The value of  $n$  is equal to about  $3m$ , and the  
value of  $m$  is equal to about  $n_0/2$ . In another form, the detector is a two-  
dimensional detector array of detector subelements. The detector subelements are  
sized and staggered such that an area of the blur-circle image may not  
simultaneously be split equally among four detector subelements.